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ARRANGEMENT FOR SEARCHING NETWORK ADDRESSES IN A NETWORK SWITCH USING MULTIPLE TABLES BASED ON SUBNET IDENTIFIER

ABSTRACT OF THE DISCLOSURE

A network switch, configured for performing layer 2 and layer 3 switching in an Ethernet (IEEE 802.3) network without blocking of incoming data packets, includes a switching module for performing layer 2 and layer 3 switching operations, and a plurality of network switch ports, each configured for connecting the network switch to a corresponding subnetwork. The switching module

5   includes a plurality of address tables for storing address information (e.g., layer 2 and layer 3 address and switching information), where each table is configured for storing the address information of a corresponding one of the subnetworks. The use of multiple address tables within the switching module enables the time for looking up address information to be substantially reduced, especially since the multiple address tables can be accessed independently and simultaneously by the switching

10   module. Moreover, the identification of each table by a corresponding subnetwork identifier enables the multiple address tables to be managed efficiently, merely by obtaining the subnetwork identifier from the received layer 2 packet. Hence, layer 3 address information for a given layer 2 packet can be obtained merely by searching the selected address table using the host identifier as a search key.